HEART LESIONS AMONGST THE NATIVES

of the

PROTECTORATE OF SIERRA LEONE.

being a

THESIS

presented for the degree of M.D.

by

HENRY ERNEST ARBUCKLE, M.B., Ch.B., Ed.

Whilst examining candidates for the posts of court messengers and mail carriers and also prisoners freshly committed to jail, I was struck by the number of abnormal hearts to be found among the natives. I therefore made an examination of the hearts of 252 apparently healthy natives of both sexes, and of varying ages from infancy upwards. None of them complained of any symptoms in any way referable to the heart, and they were all in pursuit of their ordinary daily duties: they may be taken as average specimens of the native in his ordinary state of health as met with in the Protectorate of Sierra Leone.

These examinations on analysis yield the following results:-

The total number examined was 252, of whom 170 were males and 82 females.

Dividing these into age periods the figures result as follows:-

	Male	Female	Total
0 - 5 years	17	19	36
6 - 10 years	23	18	41
11 - 15 years	14	6	20
16 - 30 years	75	32	107
31 -	41	7	48

And/

And of these, only 40 hearts can be said to be without some abnormality either in size or in the character of the sounds: this gives a rate of only 16%.

Arranging these normal hearts the different age periods we have

	Male	Female	Total	Percentage.
0 - 5 years	9	14	23	57.5 %
6 - 10 years	1	3	4	10.0 %
11 - 15 years	1	-	1	2.5 %
16 - 30 years	7	4	11	27.5 %
31 -	1	-	1	2.5 %
			40	100.0 %

The position of the Apex Beat in relation to the interspaces and nipple line is

5th Interspace	½" - 1" internal to	nipple line	98
" "	at or just internal	do.	28
" "	external to	do.	4
6th rib.	½" - 1" internal to	do.	19
" "	at or just internal	do.	14
6th Interspace	½" - 1" internal to	do.	22
" "	at or just internal	do.	48
" "	external to	do.	10
7th rib	external to	do.	3
7th Interspace	at	do.	4
" "	external to	do.	2

No murmurs present	128
Mitral systolic not propagated or not noted	40
" " propagated towards scapula	26
" presystolic	8
Tricuspid Systolic	42
" Presystolic	2
Aortic Systolic	47
Pulmonary Systolic	29
Accentuated 2nd Aortic	67
" " Pulmonary	63
Prolonged 1st Mitral	80
Diastolic mitral and tricuspid	2
Diastolic aortic and pulmonary	1
Praecordial thrill very pronounced	2
Marked epigastric pulsation	3
Greatly thickened arteries	2
Irregular rhythm in pulse	20
Goitre present	5
Spleen palpable much below ribs	43

All the cases were examined in the erect attitude, and as the cases were not on the sick list it was impossible with the material at hand to make a thorough examination of the circulation. Another reason/

reason why an exhaustive examination could not be made was the great fear which the native has of anything new and strange to him: most of those examined were very much alarmed and some crying with fear; and it was only on the order of their chief that they came for examination. Under these circumstances it was often very difficult to distinguish between a prolonged but closed sound and a bruit.

Considering the analysis of the records it appears that taking the normal position of the apex beat to be ½ - 1 inch inside the nipple line in the 5th costal interspace, there are only 98 or 38.8% hearts with the apex normally situated: of these 98 cases 53 were under 16 years of age. This means that 154 or 61.2% (nearly ⅔ of the whole number) have their hearts enlarged to a greater or less extent, but in none of them was there evidence of displacement of the heart. Out of 97 of 16 years and under, 53 had the apex beat normally situated, that is more than half the children had hearts of normal size, while of the 155 adults only 45 or 29% had hearts not increased in size.

Coming now to the heart sounds most of the murmurs were loud and distinct, and no doubt a murmur caused at one valve, was often heard in other areas,/

areas, especially I think, in the tricuspid area, murmurs arising at the aortic valve were probably heard. There are 26 cases of mitral systolic bruit propagated towards the scapula, which means of course so many incompetent mitral valves: there are also 40 mitral murmurs whose propagation was not noted or not present. In eight cases there was a presystolic murmur showing a stenosis or roughness of the mitral valve.

In the tricuspid area there were two presystolic murmurs; one of the cases had a marked diastolic murmur also, and had been troubled with symptoms referable to his heart for months.

Of systolic murmurs there were 42: many of these murmurs though heard in the tricuspid area, were due I believe, to lesions of the aortic or mitral valves, and were simply conducted down the sternum or along the ribs, since there is no other evidence of any organic lesion of the tricuspid valve in many cases: in three cases only was there any marked epigastric pulsation, and in no case is there any note of throbbing in the veins of the neck. The most frequent murmur is a systolic in the aortic area, propagated in most cases up the vessels of the neck: this implies a stenosis of the aortic valve, either relative or actual or some roughness of the cusps of the valve.

In the pulmonary area there are 29 cases of systolic murmur.

systolic murmur.

In two cases it is noted that the radial arteries are thickened, and this is probably due to arteriosclerosis.

The most frequent lesion then present in these cases is an obstruction at the aortic valve, and next in frequency is an insufficiency of the mitral valve.

A fairly extensive search in the literature has not been effectual in finding any record of such a condition of affairs in native hearts as my records show. The most common cause of heart affections in temperate climates is acute rheumatism: thus Romberg(Lehrbuch der krankheiten des Herzens und der Blutegefasse p.171) says ; of 670 cases in the Leipzig clinic all of valvular disease 58.5% occurred after acute rheumatism. In tropical countries, on the other hand, acute rheumatism is rare, so Manson (Text book of Tropical Diseases p.380) and in his lectures at London School of Tropical Medicine says: I have not heard of any cases of acute rheumatism in Sierra Leone. We must then look for other causes of heart lesions.

Under the peculiar circumstances of my examinations it is only possible to view the cardiac state from the point of view of physical conditions, and/

and mainly from that of auscultation - so that, for example, the bruits indicated in the tables are represented as audible in the valvular areas: it is not however intended to imply that there is necessarily a lesion of that valve of that area. Apart from the absence of symptoms of cardiac failure, no attempt was made to estimate the efficiency of the circulation, and the lungs were not examined for the reason that lesions of the lungs are comparatively uncommon, and I have not seen a single case of emphysema in the hundreds of natives I have examined.

It is well known that endocardial lesions of acute origin are not the only forms: anaemia, alcohol, syphilis, undue muscular strain - particularly if it be of an intermittent kind - tobacco, and the poisons of many of the infections and specific fevers, among them malaria, are facultative agents in the production of cardiac lesions of that chronic type so often associated with a degree of compensation that permits the patient to pursue his ordinary duties.

ANAEMIA: Amongst the dark skinned races it is not so easy to detect at a glance the presence of anaemia, but on everting the eyelid or looking at the gums, in a great number of natives a pallor is to/

to be found indicative of anaemia: no blood counts were ever made for lack of apparatus, but from my own experience clinically and that of other medical men out there, there is no doubt anaemia is fairly common.

Amongst the most frequent causes are

(1) improper and insufficient food. For about three months in the year, there is very great scarcity of food, and the natives can only get one meal a day, and that merely of rice or leaves.

(2) Intestinal worms, especially nematodes and cestodes, which are very common and ankylostomum duodenale is present in Sierra Leone.

(3) Malaria, which causes great anaemia, and affects almost every native in his childhood.

ALCOHOL: the native is not as a rule addicted to alcohol, but occasionally when they have money they "go on the spree" and drink bad rum and gin. I have seen one case of acute alcoholic poisoning which ended fatally. Every adult native will drink alcohol if he gets the opportunity, and that to excess, but he is not as a rule an habitual drinker.

Horsley/

Horsley and Sturge say "alcohol acts as a "direct poison on the protoplasm of heart muscle, and, "as a result, there occurs slight swelling and "cloudiness of the muscle fibre, and later on, the "actual deposition of droplets of fat in the fibre "itself." (Alcohol and the human body).

SYPHILIS. This disease is said to be very prevalent amongst the natives by the medical men long resident in the country, but personally I did not meet very many undoubted cases of syphilis, and only two cases of undoubted congenital syphilis in a whole year's residence. There is a disease characterised by ulceration very like syphilis, which has been called tertiary syphilis, but for various reasons I think the diagnosis wrong: it is extremely common in the Protectorate.

UNDUE MUSCULAR STRAIN. It is the custom for the natives to carry everything on their heads, as there is no wheeled transport in the country. And although the men carry the heavy loads the women and children carry lighter ones: the men's loads weigh from 50 - 80 lbs, and are carried all day through the heat and often the marches are continued for days. For household use water is got at least three/

three times a day, from a stream or well a little distance from the hut: the water is generally at the foot of a hill more or less steep, on which the hut is built. The water is placed in buckets about two gallons capacity, and carried on the heads of children or women: often the water is so heavy for the child that it must be lifted on and taken off the child's head by some other person, being too heavy for the child to lift.

The object in dividing the cases into age periods is to show the ages when carrying or "toting" is begun, thus:-

0 - 5 years	there is no "toting."
6 - 10 years	occasional "toting" of water and light loads becoming more regular as age advances.
11 - 15 years	regular "toting" everyday of water and light loads by boys and girls.
16 - 30 years	women "tote" water every day and do light farm work, e.g. weeding. Men "tote" heavy loads, cut wood, and clear bush lands for farms.
31 -	Men tote heavy loads, clear bush for farms etc., women continue to do light jobs and "tote" water.

The/

The age periods which have least heart affection are those where no "toting" is done and as "toting" becomes more regular so do the numbers of hearts affected increase. Also as men carry much heavier loads than women, one would expect their hearts to be affected in greater numbers than women, and such we find to be the case, because only 11% of men have normal hearts compared with 26% of women in the series of cases. Of course the numbers examined are not sufficient to enable one to take this percentage as an average, but it is sufficient to show than men are more affected than women.

The muscular strain here shown, is distinctly intermittent and so likely to cause chronic valvular disease. (Broadbent. Heart disease).

TOBACCO: Every native smokes, but as his tobacco costs money, and he has not always got the money, he cannot smoke to excess: two or three pipefuls a day is about the average consumption of tobacco, and this small quantity is not likely to affect the heart.

FEVERS. On these the commonest and only one worth considering is Malaria. This disease is so prevalent in Sierra Leone that almost, if not quite, every child contracts the disease: the form of malaria/

malaria is the subtertian which causes enormous enlargement of the spleen and great anaemia. Many of the children die from the disease; out of 1176 children 456 died in infancy (the age they contract the disease) mostly of a cause unknown to the parents. In this series of cases 43 cases had spleens palpable and generally nearly reaching the umbilicus. The spleen becomes enlarged in the first year of life and continues palpable up to the eighth or ninth year, after which it gradually regains its normal size. The malaria is untreated and after a time the child and adult become immune to further attacks: they do not seem to suffer from any cachexia. Most of the cases are passed by unnoticed, as apart from the enlarged spleen and anaemia no further signs are noticed.

Manson says in his Tropical Diseases. "As a consequence of defective nutrition from "prolonged anaemia and recurring fever, the muscular "tissue of the heart in chronic malarials may "degenerate, and the ventricles dilate."

GONORRHOEA, which is extremely common amongst the natives, may be followed by endocarditis (Foster Quain's Diet. p.670). Quite one half of the natives male and female, either have or have had gonorrhoea.

Coming/

Coming now to the individual lesions Mitral incompetence as shown by a systolic murmur in the mitral area propagated towards the axilla with an accentuated or reduplicated 2nd Pulmonary: this was present in 26 cases. The usual causes of this lesion, viz., acute rheumatism and infectious fevers, do not act in Sierra Leone. Broadbent says "Perhaps the most common and important cause of "mitral regurgitation is anaemia: it is most "important because of its frequency in young adults, "and because though curable it is yet liable to be "rendered permanent by neglect." (Heart Disease).

It has been shown that anaemia is very common.

Another cause for incompetence of the mitral valve is over distension of the left ventricle; dilatation of the ventricle following hypertrophy. Amongst so great a proportion of the people with enlarged hearts, it is quite likely that there are many cases of acute dilatation, but as they do not come to a white doctor often, it is probable that the cases of dilatation are overlooked. In my experience I have seen only two cases of acute dilatation in the native: in both cases there was mitral regurgitation. In the series there are 40 cases of systolic murmur where the murmur is not propagated/

propagated at all or has not been noted.

AORTIC OBSTRUCTION is characterised by a systolic murmur in the aortic once propagated up the vessels of the neck and down the sternum, and also an enlarged left ventricle. These signs are met with in 47 cases of the series.

The causes of aortic obstruction are, chronic muscular overstrain, anteriosclerosis and syphilis (Allchin and Gibson). These three causes, especially the first, are all present in greater or less degree.

TRICUSPID INCOMPETENCE according to Gibson (Text book of Medicine 1901) is the most common valvular affection. "It may be produced by some "lesion of the cusps, but is more commonly brought "about by some affection of muscular substance of "the heart: almost every form of anaemia may lead "to incompetency. The murmur is conducted in "every direction."

In my series of cases there are 42 cases of systolic tricuspid murmur and there is present amongst the natives both anaemia and more or less affection of the heart muscle.

PULMONARY OBSTRUCTION which is characterised by

a /

a pulmonary systolic murmur is a very rare lesion; but a pulmonary systolic murmur not due to organic disease is very common in anaemia. It is present in 29 cases of the series, and is caused in all cases, I think, by anaemia.

Of congenital malformations those at the pulmonary valve are the most frequent, and possibly as with other developmental anomalies, they may be more common where there is intermarriage of near kin. The looseness of sexual morality amongst the natives probably results in the pro creation of children by parents too closely related, but this would only apply to a small percentage of the total births.

There are 63 cases of accentuation of the second sound in the pulmonary area: this means that there is some obstruction to the flow of blood from the right side to the left side of the heart: the obstruction may be in the lungs which in this series is not likely for reasons given before, or in the left heart itself, and especially some incompetence of the mitral valve; we see that the number of cases of accentuated pulmonary 2nds nearly corresponds with the number of incompetent mitral valves.

An accentuated second sound in the aortic area indicates/

indicates some obstruction to the blood flow in the systemic circulation: this obstruction is due to increased arterial tension: the causes of increased arterial tension, says Broadbent, (Heart Disease) are renal disease, gout, atheroma, and syphilis. Renal disease may be present, but none of the natives had complained of any symptoms, or had any signs of the disease: gout amongst the natives I do not think need be reckoned: both atheroma and syphilis must be allowed. He also gives as causes of atheroma, intermittent strain, rheumatoid arthritis, alcohol and tobacco, and syphilis: all these causes are to be met with to a greater or less degree amongst the natives. In two cases it is noted that the radial arteries were markedly thickened. The aortic second sound was accentuated in 67 cases, suggesting that atheroma was present in about one quarter of the cases.

INCREASE IN SIZE OF THE HEART is due to hypertrophy, dilatation or aneurism of the heart. Apparent increase in its size as judged by the position of the apex beat may be produced by pleurisy with effusion pushing the heart out of its normal position or tumours of the mediastinum, or a contracted lung: but since all these latter conditions/

conditions have other signs and symptoms which this series did not exhibit, and since the apex beat is out of its normal position in so large a proportion of cases, nearly 2/3, of seemingly healthy people, we may disregard them as being likely causal agents.

Allowing for a few cases of dilatation, hypertrophy remains as the probable cause of this increase in size. Now the cause of hypertrophy of the heart muscle is for the left ventricle obstruction to the flow of blood through the vascular system, whether the obstruction be at the heart valves, or in the peripheral circulation. The condition of hypertrophy is compensatory. The ventricles, especially the left are the parts generally involved in hypertrophy.

Sansom says the cause of hypertrophy of the left ventricle are:-

(a) nervous causes producing increased action of the heart.

(b) Mechanical or physical, e.g. all obstructive conditions.

(c) Diseases of the valvular disease.

(d) Aneurysm of aorta.

(e) renal disease.

(f) Pregnancy.

Of the right ventricle:-

(a)/

(a) Congenital anomalies of the heart.

(b) Emphysema, fibrosis and consolidated conditions of the lungs.

(c) Curvature of the spine.

(d) Endocarditis affecting tricuspid valve.

(e) Valvular disease of left side of heart.

(Quain's Diet of Medicine p.647).

Since about 2/3 of the cases have enlarged hearts, the cause or causes must be common to all, and also since men are more affected than women 89% as compared to 74%, it is probably some cause affecting men more than women: we may therefore dismiss as probable causes, nervous cases, renal disease and pregnancy.

Congenital anomalies of the heart must be a very rare cause. Lung conditions are comparatively rare in the Protectorate: coughs in the rainy season are common enough, but a couple of days treatment with sedatives cures them completely. Curvature of the spine I have never seen or heard of in the Protectorate. There remains only mechanical or physical obstruction and valvular disease.

As we have seen the valvular diseases most common are mitral regurgitation, aortic obstruction, and tricuspid regurgitation. Now aortic obstruction is/

is the lesion par excellence for causing hypertrophy of the left ventricle: the mitral regurgitation will tend to cause hypertrophy also but a less degree.

Also as has been shown in a quarter of the cases there is some increased arterial tension, and this by impeding the ready flow of blood from the heart will cause some hypertrophy of the left ventricle.

Also the quickened action of the heart caused by muscular exertion, if persisted in or of sufficiently frequent occurrence, will cause some hypertrophy of the heart (Quain).

And since the muscular exercise is begun early in childhood it is a potent cause of hypertrophy.

Scheube in his"Diseases of Warm Climates" quotes Martin as having observed hypertrophy of the left ventricle in malarials.

In my whole series of cases only one man complained of any symptoms due to the state of his heart, No.8 in the series, and it is remarkable that in so many cases of affection of the heart valves there were no symptoms or that if any, they were so slight as not to induce the patient to mention them. I a whole year's experience with over a thousand patients, I have only seen two cases with any acute heart symptoms. In the other cases the heart does not/

not seem to cause them any symptoms. As a rule very few old people are seen in the country and no doubt the state of the heart has something to do with the comparatively early deaths.

Touching on this condition of the heart without symptoms, I may mention that I have just heard from an Officer in the Royal Army Medical Corps who has recently examined about 2000 recruits for the Artillery, that a large number of them have cardiac bruits without other circulatory symptoms; and that it is particularly amongst those who, before joining have been living a hand to mouth existence, are pale, if not distinctly anaemic, and have certainly been underfed, if not almost starved. Without any treatment other than feeding up and rest they nearly all lose every trace of abnormal auscultatory sounds and go through their recruits drill without showing any effect on the heart. Further that he has had several man from amongst a garrison who have intermittently very heavy work to do, e.g. lifting very heavy shells six or seven times a minute, - who develop aortic regurgitant murmurs, but recover so completely as to return to the same duty after a few months rest.

From the fact that I have seen very few cases of cardiac/

cardiac failure I do not mean to imply necessarily that there are so very few cases amongst the natives, but only that the natives do not bring many of their sick to the white doctor, preferring to trust to their own native doctors, and as no post mortem examinations, or enquiries as to cause of death are made it is impossible to say how many cases die of cardiac failure.

The most striking feature of the whole observation is that in a country where the cause we are accustomed to regard as by far the most potent, namely acute rheumatism, is certainly not operative, Heart Disease should nevertheless be so prevalent. The most obvious deduction is, that even in countries where Acute Rheumatism is of such prevalence as to overshadow in importance the other competent causes of cardiac lesions, these latter should never be forgotten or neglected by the Practitioner, either in Prophylaxis in diagnosis or in prognosis.

(1) Morlai. 22 years.

Apex 5th space just external.

Beat diffuse.

Mitral: Loud presystolic and systolic

Tricuspid: Loud systolic.

Aortic: -

Pulmonary: Purring systolic.

(2) Surie Banyo. 21 years.

Apex 5th space ½" internal.

Mitral: -

Tricuspid: -

Aortic: -

Pulmonary: -

(3) Tonka. 22 years.

Apex 5th space. ½" internal.

Mitral: Presystolic.

Tricuspid: -

Aortic -

Pulmonary -

(4) Dowdah. 23 years.

Apex 5th space ½" internal.

Mitral: -

Tricuspid: -

Aortic -

Pulmonary -

(5) Sango. 40 years.

Apex 5th space $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(6) Suriebah. 30 years

Apex 6th space 1" internal.

M. Presystolic and systolic.

T. -

A. -

P. -

(7) Duramana. 34 years.

Apex 6th space 1" internal.

M. Harsh prolonged 1st.

T. -

A. -

P. -

(8) Bambi. 30 years.

Apex 6th space just internal

Beat diffuse.

M. Harsh presystolic and systolic
2nd sound not closed

T. Harsh presystolic and diastolic

A. Loud diastolic.

P. Diastolic.

Epigastric pulsation.

Has Musc. and artic rheumatism.

(9) Momo. 19 years.

Apex 5th space just internal.

M. Loud systolic, accentuated 2nd.

T. -

A. Accentuated 2nd.

P. do.

(10) Yima 30 years female

Apex 5th space 1" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(11) Baba. 25 years.

Apex 5th space $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(12) Morlai Konteh 23 years.

Apex 6th rib nipple line.

Beat diffuse.

M. Loud rough systolic

T. Loud systolic

A. Accentuated 2nd.

P. -

Systolic thrill easily palpable.
Radial arteries thickened.

(13) Sargo. 28 years.

Apex 5th space 1" internal.

M. -

T. Accentuated 2nd.

A. -

P. -

(14) Bockari. 30 years.

Apex 5th space nipple line.

M. Prolonged 1st.

T. Accentuated 2nd.

A. -

P. -

(15) Bockari Kamara 31 years.

Apex 6th space ½" internal.

M. Prolonged 1st, accentuated 2nd.

T. -

A. Slight systolic

P. -

(16) Lamina Bundu 25 years.

Apex 6th space, mipple line.

M. Systolic.

T. Loud Systolic

A. -

P. -

(17) Moosu, 24 female.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(18) Dernoh 40 years female.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. -

(19) Abduttah. 22 years.

Apex 6th rib ½" internal.

M. Loud Systolic

T. Loud systolic, accentuated 2nd.

A. Systolic and accentuated 2nd.

P. Soft systolic.

(20) Bobo. 45 years.

Apex 6th rib ½" internal.

M. Prolonged 1st.

T. do.

A. Systolic.

P. do.

Rhythm irregular.

(21) Momo 30 years.

Apex 7th space, nipple line.

M. Low systolic, accentuated 2nd.

T. Systolic

A. Systolic and accentuated 2nd.

P. do. do.

(22) Morlai. 30 years.

Apex 7th space, nipple line.

M. Systolic and diastolic

T. Systolic and diastolic

A. Sound very faint.

P. Systolic accentuated 2nd.

Murmur propagated to axilla.

and up vessels of neck.

(23) Bockari 40 years.

Apex 7th rib $\frac{1}{2}$" ext.

M. Systolic.

T. Systolic accentuated 2nd.

A. Systolic accentuated 2nd.

P. do. do.

(24) Barliah 30 years.

Apex 6th space, nipple line.

M. Loud systolic

T. do.

A. Accentuated 2nd.

P. do.

(25) Kumba 20 years female.

Apex 5th space ½" int.

M. Systolic (?)

T. -

A. -

P. Systolic.

(26) Tonko. 24 years

Apex 6th space ½" int.

M. Prolonged 1st.

T. -

A. Accentuated 2nd.

P. -

Irregular rhythm.

(27) Blackie. 27 years.

Apex 5th space 1st. int.

M. -

T. -

A. -

P. -

(28) Fingere, 18 years female.

Apex 5th space ½" int.

M. Systolic (?)

T. -

A. Accentuated 2nd.

P. Systolic.

Goitre present and enlarged glands in neck.

(29) Masu. 24 years.

Apex 6th space, nipple line.

M. Loud systolic.

T. Faint systolic

A. Systolic.

P. -

Propagated up vessels of neck.

(30) Suriebah. 10 years.

Apex 5th space 1" int.

M. Systolic (?)

T. -

A. Reduplicated 2nd.

P. Systolic and reduplicated 2nd.

(31) Suriebah. 35 years.

Apex 6th space, nipple line.

M. Harsh prolonged 1st.

T. do.

A. Very faintly heard.

P. do.

(32) Kobo. 20 years.

Apex 5th space 1" int.

M. Accentuated 2nd.

T. do.

A. do.

P. do.

(33) Selo 28 years female.

Apex 5th space 1" int.

M. Accentuated 2nd.

T. -

A. Accentuated 2nd.

P. -

(34) Demoh 26 years female.

Apex 6th space, just external.

M. Very loud systolic

T. Systolic

A. Systolic

P. Systolic and accentuated 2nd.

(35) Hi 30 years female.

Apex 5th space ½" int.

M. Rough prolonged 1st.

T. Accentuated 2nd.

A. do.

P. -

(36) Coyah. 18 years female.

Apex 6th space, nipple line.

M. Systolic.

T. Accentuated and reduplicated 2nd.

A. do. do.

P. do. do.

(37) Boirna 39 years.

Apex 6th space, nipple line.

M. Harsh systolic.

T. Accentuated 1st.

A. Loudly accentuated 2nd.

P. Accentuated 2nd.

(38) Dermoh. 31 years female.

Apex 5th space ½" int

M. Prolonged 1st.

T. do.

A. -

P. -

(39) Ansumana. 30 years

Apex 6th space ½" int.

M. Prolonged 1st.

T. -

A. -

P. -

(40) Thomas. 27 years.

Apex 6th rib, nipple line

M. Prolonged 1st, accentuated 2nd.

T. -

A. Systolic, accentuated 2nd.

P. Slight systolic.

(41) Yemo 11 years female.

Apex 5th space 1" int.

M. -

T. -

A. Accentuated 2nd.

P. do.

(42) Fatso 9 years female

Apex 5th space 1" int.

M. -

T. -

A. -

P. Accentuated and reduplicated 2nd.

(43) Fengbe 30 years female

Apex 5th space ½" int.

M. -

T. -

A. -

P. -

(44) Fodi 20 years

Apex 6th rib, just internal

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. do.

Slight irregularity of rhythm.

(45) Yeno. 25 years female.

Apex 6th space, just external.

M. Very loud systolic.

T. Systolic.

A. Systolic and accentuated 2nd.

P. Slight Systolic.

(46) Bamp. 32 years.

Apex 6th space nipple line.

M. Accentuated 2nd.

T. Accentuated & reduplicated 2nd.

A. -

P. Accentuated and reduplicated 2nd.

(47) Binaia. 26 years female.

Apex 6th rib, nipple line.

M. Prolonged 1st.

T. -

A. Accentuated 2nd.

P. Systolic.

(48) Nkaimu. 25 years.

Apex 6th space just internal.

M. -

T. -

A. -

P. -

(49) Yinkin. 40 years. female.

Apex 7th space 1" external

M. Systolic.

T. do.

A. do.

P. -

Propagated to angle of scapula and up vessels of neck.

(50) Moosa. 50 years.

Apex 6th space just internal.

M. Prolonged 1st.

T. -

A. Systolic.

P. do.

(51) Karfalla. 45 years.

Apex 6th rib, $\frac{1}{2}$" internal.

M. Presystolic and systolic.

T. Harsh systolic.

A. -

P. Accentuated 2nd.

(52) Boinke. 30 years. female.

Apex 5th space, nipple line.

M. Systolic (?)

T. Accentuated 2nd.

A. Reduplicated 2nd.

P. Accentuated & reduplicated 2nd.

(53) Amara 40 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(54) Johnny. 28 years.

Apex 6th space just internal.

M.. Prolonged 1st.

T. do.

A. Reduplicated 2nd.

P. do.

(55) Selo. 20 years. female.

Apex 5th space 1" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(56) Bassi. 26 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(57) Fodia 25 years. female.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. -

A. -

P. -

Slight irregularity of rhythm.

(58) Mariamma. 24 years female.

Apex 6th space just internal.

M. Prolonged 1st.

T. -

A. Faint Systolic, accentuated 2nd.

P. Systolic, accentuated 2nd.

(59) Marna. 12 years female.

Apex 5th space, just internal.

M. Prolonged 1st, accentuated 2nd.

T. do.

A. Accentuated and reduplicated 2nd.

P. do. do.

(60) Morrison. 35 years.

Apex 6th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(61) Bai Konteh. 26 years.

Apex 6th rib, just internal.

M. Slight Systolic. (?)

T. -

A. -

P. -

(62) Dokar. 30 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

(63) Yeli. 30 years. female.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. -

A. -

P. -

(64) Suriebah. 22 years.

Apex 6th space, nipple line.

Beat diffuse.

M. Prolonged 1st.

T. do.

A. Systolic.

P. do.

Propagated up neck vessels.

(65) Yelikeh. 35 years.

Apex 6th rib ½" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(66) Alimami Moiseray 50 years.

Apex 7th space, nipple line.

M. Systolic.

T. Loud Systolic and reduplicated 2nd.

A. Reduplicated 2nd.

P. do.

Murmur not propagated, epigastric pulsation.

(67) Moiseray. 30 years.

Apex 5th space ½" internal.

M. -

T. Loud Systolic.

A. -

P. Accentuated 2nd.

(68) Sheaka Bangura. 25 years.

Apex 6th rib, nipple line.

M. Prolonged 1st.

T. do.

A. -

P. -

Irregular rhythm.

(69) Surie Sankoh. 35 years.

Apex 6th rib. 1" internal.

M. -

T. -

A. -

P. -

(70) Poshe. 30 years female.

Apex 7th rib ½" internal.

M. Loud Systolic.

T. Systolic.

A. Accentuated 2nd.

P. -

Propagated to scapula.

(71) Malligie. 35 years.

Apex 6th space ½" internal.

M. Loud harsh systolic.

T. Harsh Systolic.

A. Systolic and accentuated 2nd.

P. Accentuated 2nd.

Propagated up neck vessels.

(72) Yafira. 45 years. female.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. -

A. Systolic and accentuated 2nd.

P. -

Propagated up neck vessels.

(73) Amadhu. 35 years.

Apex 7th space nipple line.

M. Prolonged 1st.

T. do. and accentuated 2nd.

A. Systolic and accentuated 2nd.

P. Systolic.

Propagated up neck vessels.

(74) Lamina. 25 years.

Apex 6th space, just internal.
Beat Diffuse.

M. Loud blowing systolic.

T. Blowing Systolic.

A. Systolic and accentuated 2nd.

P. do. do.

Propagated to scapula and up neck vessels.

(75) Fodi. 20 years.

Apex 5th space $\frac{1}{2}$" internal.

M. Loud harsh systolic.

T. Accentuated 2nd.

A. Systolic and accentuated 2nd.

P. -

Propagated up neck vessels.

(76) Bassi. 15 years.

Apex 5th space, nipple line.

M. Prolonged 1st.

T. -

A. Accentuated 2nd.

P. Systolic.

(77) Renka 23 years.

Apex 6th space. nipple line.

M. Prolonged 1st.

T. Accentuated 2nd.

A. Systolic.

P. -

Propagated up vessels of neck.

(78) Willie 25 years.

Apex 6th space just internal.

M. Systolic.

T. do.

A. Accentuated 2nd.

P. do.

Propagated to angle of scapula.

(79) Sheaka 13 years.

Apex 6th space, just external.

M. Systolic.

T. do.

A. Systolic and accentuated 2nd.

P. do. do.

(80) Fodi. 26 years.

Apex 5th space $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(81) Sumana Kargbo. 22 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(82) Karo. 35 years.

Apex 6th space ½" internal.

M. -

T. -

A. -

P. -

(83) Kumboh. 25 years.

Apex 6th space ½" internal.

M. Loud systolic.

T. Systolic.

A. -

P. -

Not propagated.

(84) Sargo. 23 years.

Apex 6th rib ½" internal.

M. Prolonged 1st.

T. Accentuated 2nd.

A. Systolic and accentuated 2nd.

Propagated up neck vessels.

(85) Monodhu Fullek. 45 years.

Apex 6th space just internal.

M. Prolonged 1st.

T. do.

A. Systolic.

P. -

Propagated up neck vessels.

(86) Ai. 6 years. female.

Apex 5th space, nipple line.

M. Systolic.

T. do.

A. Reduplicated 2nd.

P. Accentuated and reduplicated 2nd.

Propagated to angle of scapula:
Oedema of feet present.

(87) Judith. 10 years. female.

Apex 6th space $\frac{1}{2}$" internal.

M. Systolic.

T. -

A. Systolic.

P. Accentuated 2nd.

Propagated up neck vessels.

(88) Thomas. 8 years.

Apex 6th rib, nipple line.

Beat diffuse.

M. Loud blowing systolic.

T. do.

A. Accentuated 2nd.

P. do.

Propagated to scapula.

(89) Bockari. 10 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

(90) Bana. 7 years.

Apex 6th space just internal.

M. Prolonged 1st. systolic (?)

T. -

A. Slightly accentuated 2nd.

P. do.

Spleen palpable.

(91) Surie. 8 years.

Apex 6th rib nipple line.

M. Blowing systolic.

T Systolic.

A. -

P. Slight systolic.

Propagated to axilla; rhythm irregular.

(92) Alimgoni. 6 years.

Apex 5th space. just external.

M. Reduplicated 1st or systolic(?)

T. -

A. Accentuated 2nd.

P. do.

Spleen palpable.

(93) Saloo. 9 years.

Apex 5th space, nipple line.

M. Systolic (?)

T. -

A. -

P. Accentuated 2nd.

Rhythm irregular.

(94) Dinga. 3 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Rhythm irregular every 5th beat diffuse
Spleen palpable.

(95) Yeli. 8 years female.

Apex 5th space just internal.

M. Systolic (?)

T. -

A. -

P. -

Irregular rhythm: Spleen palpable.

(96) Marie. 5 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

(97) Mendoah. 5 years female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Rhythm irregular: spleen palpable.

(98) Yeli. 6 years female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(99) Bilamma. 5 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(100) Biange. 5 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(101) Tsia. 4 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(102) Surie. 2 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(103) Naiaba. 1 year. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(104) Dauwa. 1 year.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(105) Gbosorko. 20 years

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(106) Sineh. 25 years.

Apex 5th space 1" internal.

M. -

T. Reduplicated 2nd.

A. do.

P. do.

(107) Sebbe. 18 years.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. -

A. Systolic

P. -

Propagated up neck vessels.

(108) Samba. 10 years.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. -

A. -

P. Systolic.

(109) Ali. 6 years.

Apex 6th rib. ½" internal.

M. -

T. -

A. -

P. -

(110) Bai. 18 years.

Apex 6th rib ½" internal.

M. Loud systolic.

T. Systolic (?)

A. Systolic (?)

P. -

Propagated to axilla.

(111) Surie 50 years.

Apex 6th space, nipple line.

M. Systolic.

T. do.

A. -

P. -

Propagated to axilla.

(112) Sheaka. 17 years.

Apex 6th rib, ½" internal.

M. Loud presystolic and systolic.

T. -

A. -

P. Systolic (?)

Not propagated: rhythm irregular.

(113) Karim. 19 years.

Apex 6th space ½" internal.

M. Systolic (?)

T. -

A. Systolic

P. -

Propagated up vessels of neck.

(114) Digba. 12 years. female.

Apex 5th space 1" internal.

M. Prolonged 1st.

T. do.

A. -

P. Reduplicated 2nd.

(115) Kapru Loya. 50 years.

Apex 6th space ½" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(116) Farma. 40 years.

Apex 6th space just internal.

M. Prolonged 1st.

T. -

A. -

P. -

(117) Baba. 50 years.

Apex 6th rib ½" internal.

M. Prolonged 1st.

T. -

A. Systolic.

P. Reduplicated 2nd.

Propagated up vessels of neck.

(118) Kaba Seisei. 50 years.

Apex 5th space ½" internal.

M. -

T. Accentuated 1st.

A. Accentuated 2nd.

P. -

(119) Fingere. 40 years. female.

Apex 6th space ½" internal.

M. Prolonged 1st.

T. -

A. Accentuated 2nd.

P. do.

(120) Hannah. 30 years. female.

Apex 6th space, nipple line.

M. Slight systolic. (?)

T. -

A. Systolic (?)

P. -

Goitre present.

(121) Dikali. 5 years.

Apex 6th rib. ½" internal.

M. Systolic.

T. Reduplicated 2nd.

A. Accentuated 2nd.

P. Reduplicated 2nd.

Propagated to scapula.

(122) Kandi. 3 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(123) Dambe. 35 years. female.

Apex 6th space, nipple line.

M. Prolonged 1st or systolic (?)

T. Accentuated 1st.

A. -

P. -

(124) Mono. 6 years.

Apex 5th space, just internal.

M. Prolonged 1st.

T. do.

A. -

P. -

Spleen just palpable.

(125) Saio. 22 years.

Apex 6th space ½" internal.

M. Loud systolic.

T. do.

A. Systolic.

P. Accentuated 2nd.

Propagated up neck.

Thrill easily felt.

(126) George. 20 years.

Apex 6th space ½" internal.

M. Loud blowing systolic.

T. do.

A. Systolic, loudly accentuated 2nd.

P. Systolic, accentuated 2nd.

Propagated up neck vessels.

(127) Kabba. 21 years.

Apex 5th space 1" internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(128) Koleh. 19 years.

Apex 5th space, nipple line.

M. Presystolic (?)

T. -

A. -

P. -

(129) Edward Dance. 6 years.

Apex 6th rib. ½" internal.

M. Systolic.

T. -

A. -

P. Reduplicated 2nd.

Propagated to scapula: rhythm irregular.

(130) Kalfalla. 28 years.

Apex 5th space, nipple line.

M. Systolic (?)

T. Accentuated 1st.

A. -

P. -

(131) Goreh. 30 years.

Apex 6th rib ½" internal.

M. Blowing systolic.

T. do.

A. Systolic.

P. -

Propagated up neck.

(132) Betty. 17 years. female.

Apex 5th space 1" internal.

M. Systolic. (?)

T. do.

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

Rhythm irregular.

(133) Yebaki. 10 years. female.

Apex 6th space just external.

M. Systolic.

T. -

A. Accentuated 2nd.

P. do.

Propagated to angle of scapula.

(134) Safi. 7 years. female.

Apex 5th space 1" internal.

M. Systolic (?)

T. -

A. Accentuated 2nd.

P. -

(135) Samba. 5 years.

Apex 5th space 1" internal.

M. Presystolic (?)

T. -

A. Reduplicated 2nd.

P. do.

Spleen palpable.

(136) Ali. 8 years.

Apex 5th space $\frac{1}{2}$" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(137) Rasi. 5 years.

Apex 5th space 1" internal.

M. Systolic (?)

T. -

A. -

P. -

Spleen palpable.

(138) Momodhu. 6 years.

Apex 5th space ½" internal.

M. Systolic, accentuated 2nd.

T. Accentuated 2nd.

A. Loud blowing systolic, accentuated 2nd.

P. -

Some projection of praecordia suggesting Aneurism. History of traumatism.

(139) Baba Saidi. 7 years.

Apex 5th space ½" internal.

M. - slight
T. - accentuation
A. - of all
P. - sounds.

(140) Mariama. 4 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. Systolic.

P. -

Propagated up vessels of neck.
Very rapid pulse.
Goitre present.

(141) Yelaki. 3 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(142) Yetoo. 20 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. Accentuated 2nd.

P. do.

(143) Tene. 9 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(144) Terano. 6 years.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. Accentuated 2nd.

(145) Yinkin. 30 years. female.

Apex 6th space ½" internal.

M. Systolic. (?)

T. Accentuated 2nd.

A. -

P. -

(146) Koia. 16 years. female.

Apex 5th space ½" internal.

M. Systolic.

T. Systolic (?)

A. Accentuated 2nd.

P. do.

Not propagated.

(147) Yumbu. 7 years. female.

Apex 5th space just external.

M. Systolic.

T. -

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

(148) Ammi. 6 years. female.

Apex 5th space, nipple line.

M. Systolic (?)

T. -

A. Systolic

P. -

Spleen palpable.

(149) Hamadi. 5 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(150) Funduka. 5 years.

Apex 5th space ½" internal.

M. Systolic (?)

T. do (?) accentuated 2nd.

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

Very rapid pulse: spleen palpable.

(151) Yebu. 2 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(152) Yeba. 1½ years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(153) Bunduka. 6 years.

Apex 5th space ½" internal.

M. Accentuated 2nd.

T. -

A. -

P. Accentuated 2nd.

Spleen palpable.

(154) Momodhu. 20 years.

Apex 6th space, nipple line.

M. Loud systolic.

T. Systolic (?)

A. Blowing systolic, accentuated 2nd.

P. do. do.

Propagated up vessels of neck.

(155) Minta. 18 years. female

Apex 5th space ½" internal.

M. Systolic (?)

T. -

A. -

P. -

(156) Alsini. 1 year.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(157) Porro. 30 years. female.

Apex 5th space ½" internal.

M. Systolic (?)

T. -

A. -

P. -

(158) Bonkapr. 15 years. female.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. -

P. -

(159) Kungbe. 15 years.

Apex 6th rib just internal.

M. Blowing systolic.

T. do.

A. Accentuated 2nd.

P. do. (slightly).

Propagated to scapula.

(160) Kono. 13 years.

Apex 5th space just internal.

M. Prolonged 1st.

T. -

A. -

P. -

(161) Binta. 9 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. Loudly accentuated 2nd.

(162) Tumbu. 15 years.

Apex 6th rib 1" internal.

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. -

(163) Abdullai. 35 years.

Apex 5th space nipple line.

M. Blowing systolic.

T. Systolic.

A. -

P. Systolic.

Propagated to axilla.

(164) Mamodhu. 40 years.

Apex 6th rib ½" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(165) Momodhu. 20 years.

Apex 6th rib, nipple line.

M. Blowing Systolic.

T. do.

A. do.

P. do.

Propagated to acapula and up vessels of neck.

(166) Sukubi. 50 years.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(167) Soko. 19 years. female.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. Accentuated 2nd.

(168) Bundu. 13 years.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. do.

(169) Karimo. 10 years.

Apex 5th space ½" internal.

M. -

T. Accentuated 2nd.

A. -

P. Accentuated 2nd.

(170) Sheaka 15 years.

Apex 5th space 1" internal.

M. Blowing systolic.

T. -

A. Systolic.

P. -

Propagated up vessels of neck.

(171) Kombo. 15 years.

Apex 6th rib ½" internal.

M. Loud Systolic.

T. Systolic.

A. do.

P. do. and accentuated 2nd.

Propagated to scapula and up neck.

(172) Bundu. 10 years female.

Apex 5th space 1" internal.

M. -

T. -

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

(173) Sata. 7 years.

Apex 6th rib ½" internal.

M. Systolic (?)

T. -

A. -

P. -

(174) Yani. 6 years. female.

Apex 5th space just internal.

M. Blowing systolic.

T. do.

A. Accentuated 2nd.

P. do.

Not propagated.

(175) Bundu. 5 years.

Apex 5th space, just internal.

M. Blowing systolic.

T. -

A. Systolic.

P. -

Propagated up neck: spleen palpable.

(176) Koia. 20 years. female

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(177) Arayena. 19 years. female.

Apex 5th space ½" internal.

M. -

T. Accentuated 1st.

A. -

P. -

(178) Sata. 22 years. female.

Apex 7th space ½" external.

M. Blowing systolic.

T. -

A. Reduplicated 2nd.

P. do.

Propagated to axilla: small goitre.

(179) Demoh. 30 years. female.

Apex 6th space, nipple line.

M. Systolic.

T. -

A. Accentuated 2nd.

P. -

Propagated to axilla: small goitre.

(180) Ahmadu. 32 years.

Apex 6th rib, nipple line.

M. Harsh systolic.

T. do.

A. -

P. -

Not Propagated.

(181) Konta. 25 years female.

Apex 6th space, nipple line

M. Harsh Systolic.

T. do.

A. -

P. -

Not propagated.

(182) Bimbah. 25 years.

Apex 6th space just internal.

M. Loud Systolic.

T. Accentuated 1st.

A. -

P. -

Not propagated.

(183) Fodi. 9 years.

Apex 5th space 1" internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(184) Digba. 25 years. female.

Apex 6th space nipple line.

M. Systolic (?) Prolonged 1st.

T. Prolonged 1st.

A. -

P. -

(185) Soto. 35 years female.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. -

P. -

(186) Suriekata. 40 years.

Apex 6th space ½" internal.

M. Prolonged 1st.

T. Accentuated 1st.

A. -

P. -

(187) Lamina. 30 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. Accentuated 2nd.

(188) Maiali. 28 years.

Apex 6th space ½" internal.

M. Accentuated and prolonged 1st.

T. do.

A. Reduplicated 2nd.

P. do.

(189) Surie. 30 years.

Apex. 6th space, nipple line.

M. Harsh Systolic

T. do.

A. -

P. -

Not propagated.

(190) Suriebah. 25 years.

Apex 5th space, nipple line.

M. Accentuated 1st.

T. do.

A. -

P. -

Irregular rhythm.

(191) Lamina. 35 years.

Apex 6th space, nipple line.

M. Blowing Systolic.

T. do.

A. Accentuated 2nd.

P. do.

Propagated to scapula.

(192) Koroma. 32 years.

Apex 6th rib $\frac{1}{2}$" internal.

M. Harsh prolonged 1st.

T. do.

A. -

P. -

(193) Bangura 24 years.

Apex 5th space ½" internal.

M. -

T. -

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

very rapid pulse.

(194) Momodhu. 17 years.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. Accentuated 2nd.

(195) Sidike. 26 years.

Apex 6th rib, nipple line.

M. Loud harsh Systolic.

T. Systolic.

A. Accentuated 2nd.

P. -

Propagated to axilla.

(196) Karibangura. 30 years.

Apex 6th rib, just internal.

M. Loud Systolic.

T. Systolic. (?)

A. Systolic

P. Accentuated 2nd.

Propagated up neck.

(197) George 25 years.

Apex 5th space, nipple line.

M. Prolonged 1st.

T. do.

A. Systolic, accentuated 2nd.

P. -

Propagated up neck.

(198) Minkmenke. 15 years.

Apex 6th rib, just internal.

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. Accentuated and reduplicated 2nd.

(199) Bockari. 14 years.

Apex 6th rib, nipple line.

M. Prolonged 1st.

T. -

A. Accentuated 2nd.

P. do.

Marked irregularity of rhythm.

(200) Lamina 14 years.

Apex 5th space 1" internal.

M. Prolonged 1st.

T. do.

A. Systolic, accentuated 2nd.

P. Accentuated 2nd.

Propagated up vessels of neck.

(201) Kappa. 25 years.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. Accentuated 2nd.

(202) Samuel. 23 years.

Apex 5th space, nipple line.

M. Loud prolonged 1st.

T. do. and reduplicated 2nd.

A. Slightly accentuated 2nd.

P. Accentuated and reduplicated 2nd.

(203) Amara. 14 years.

Apex 5th space $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(204) Lamina. 15 years.

Apex 5th space, nipple line.

M. Loud blowing systolic

T. Systolic.

A. Accentuated 2nd.

P. do.

Propagated to axilla.

(205) Surie. 13 years.

Apex 5th space just internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(206) Surie Kambia. 45 years.

Apex 6th space $\frac{1}{2}$" external.

M. Systolic.

T. do.

A. -

P. -

Propagated to axilla.

(207) Blackie. 26 years.

Apex 6th space $\frac{3}{4}$" external.

M. Soft blowing systolic

T. Systolic.

A. do.

P. -

Propagated up neck and to axilla.

(208) Bimbah. 24 years.

Apex 5th space, just internal.

M. Prolonged 1st and 2nd.

T. Accentuated 1st.

A. -

P. Accentuated 2nd.

(209) Bassi. 27 years.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(210) Santiggi. 19 years.

Apex 6th space ½" internal.

M. Systolic (?)

T. -

A. -

P. -

(211) Momodhu. 17 years.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. -

P. -

(212) James. 18 years.

Apex 6th space, nipple line.

M. Rough Systolic.

T. do.

A. Systolic.

P. -

Propagated up neck.

(213) Sungi. 20 years.

Apex 5th space $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(214) Yengaju. 40 years.

Apex 5th space $\frac{1}{2}$" internal.

M. Systolic.

T. do.

A. -

P. -

Propagated to axilla.

(215) Joe Banga. 60 years.

Apex 6th space $\frac{1}{2}$" external.

M. Systolic.

T. -

A. -

P. -

Not propagated.

(216) Saidu. 45 years.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. -

P. -

(217) Twai Umi. 55 years.

Apex 6th space, nipple line.

M. Prolonged 1st.

T. do.

A. Accentuated 2nd.

P. -

(218) Lahai Pujeb. 60 years.

Apex 6th space ½" external.

M. Prolonged 1st.

T. do.

A. Systolic.

P. -

Propagated up vessels of neck.

(219) Bali Pippi. 55 years.

Apex 7th rib. 1" external.

M. Systolic.

T. do.

A. -

P. Systolic.

Propagated to axilla.

Marked epigastric pulsation.

(220) Lamboi. 25 years.

Apex 6th space, nipple line.

M. Systolic (?)

T. -

A. Systolic

P. do.

Propagated up neck.

(221). Yakano 1/12 year female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

(222) Fenghe 4/12 year female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

(223) Titi. 4 years female.

Apex 6th space, nipple line.

M. Systolic.

T. -

A. -

P. -

Very rapid action.

Greatly enlarged spleen.

(224) Santiggi. 2 years.

Apex 6th space $\frac{1}{2}$" external.

M. Prolonged 1st.

T. Harsh Systolic.

A. -

P. -

Spleen palpable.

(225) Yumbu. 8 years female.

Apex 5th space ½" internal.

M. Prolonged 1st.

T. Accentuated 2nd.

A. do.

P. Accentuated and reduplicated 2nd.

Spleen palpable.

Irregular rhythm.

(226) Moosu. 8 years female.

Apex 5th space ½" external.

M. Presystolic (?)

T. Systolic (?)

A. -

P. Accentuated 2nd.

Irregular rhythm.

(227) Kayaiya. 2 years female.

Apex 6th space, nipple line.

M. -

T. -

A. -

P. Systolic.

Greatly enlarged spleen.

(228) Maia. 2 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(229) Santiggi. 6 years.

Apex 5th space, nipple line.

M. Systolic (?)

T. -

A. Slightly accentuated 2nd.

P. -

(230) Bali. 1½ years female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(231) Moosa. 10 years

Apex 5th space ½" internal.

M. Systolic (?)

T. -

A. Accentuated 2nd.

P. -

Spleen palpable.

(232) Maria 10 years. female.

Apex 5th space just internal.

M. Prolonged 1st.

T. do.

A. -

P. -

(233) Ibrahima 1 year.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(234) Seli. 4 years. Female.

Apex 5th space, just external.

M. -

T. -

A. Accentuated 1st.

P. Systolic (?)

Irregular in force and rhythm.

Spleen palpable.

(235) Wete. 2 years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Irregular rhythm.

Spleen palpable.

(236) Surie Kamu. 40 years.

Apex 5th space ½" internal.

M. Presystolic.

T. -

A. Slightly accentuated 2nd.

P. Accentuated 2nd.
Presystolic thrill very palpable.

(237) Momodhu. 5 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(238) Daromie. 35 years.

Apex 5th space ½" internal.

M. Presystolic and Systolic.

T. Systolic (?)

A. Accentuated 2nd.

P. Reduplicated 2nd.

Propagated to axilla.

(239) Fatima 1 year. female.

Apex 5th space nipple line.

M. -

T. -

A. -

P. -

Spleen palpable.

(240) Bura 20 years female.

Apex 6th space just internal.

M. Prolonged 1st.

T. do.

A. Systolic

P. -

Propagated up neck.

(241) Tomo. 19 years. female.

Apex 6th space ½" internal.

M. Prolonged 1st.

T. do.

A. Systolic, accentuated 2d

P. Loudly accentuated 2nd.

Propagated up neck vessels.

(242) Mariamma 1½ years. female.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(243) Kuru. 10 years.

Apex 6th space, just internal.

M. Prolonged 1st.

T. do.

A. Systolic.

P. Accentuated 2nd.

Propagated up neck.

(244) Yenabah. 6 years. female.

Apex 6th space ½" external.

M. Accentuated 2nd.

T. -

A. Accentuated 2nd.

P. Very loudly accentuated 2nd.

Irregular rhythm.
Enlarged Spleen.

(245) Momodhu. 6 years.

Apex 5th space, nipple line.

M. -

T. -

A. -

P. -

(246) Banfe. 5 years. female.

Apex 5th space, just internal.

M. -

T. -

A. Accentuated 2nd.

P. -

Spleen palpable.

(247) Yeli. 4 years. female.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

Spleen palpable.

(248) Bockari. 26 years.

Apex 5th space ½" internal.

M. -

T. -

A. -

P. -

(249) Bockari. 40 years.

Apex 6th space, just external.

M. Rough Systolic.

T. -

A. Systolic.

P. -

Propagated up neck: thickened arteries.

(250) Kelfalla. 27 years.

Apex 6th rib $\frac{1}{2}$" internal.

M. -

T. -

A. -

P. -

(251) Yelanko. 36 years.

Apex 6th space 1" internal.

M. Prolonged 1st.

T. -

A. -

P. -

(252) Nife. 1/12 year.

Apex 5th space 1" internal.

M. -

T. -

A. -

P. -

Spleen palpable.